



# 2600

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The Hacker Quarterly



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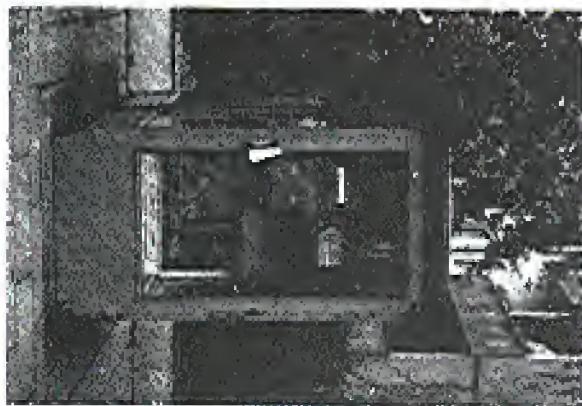
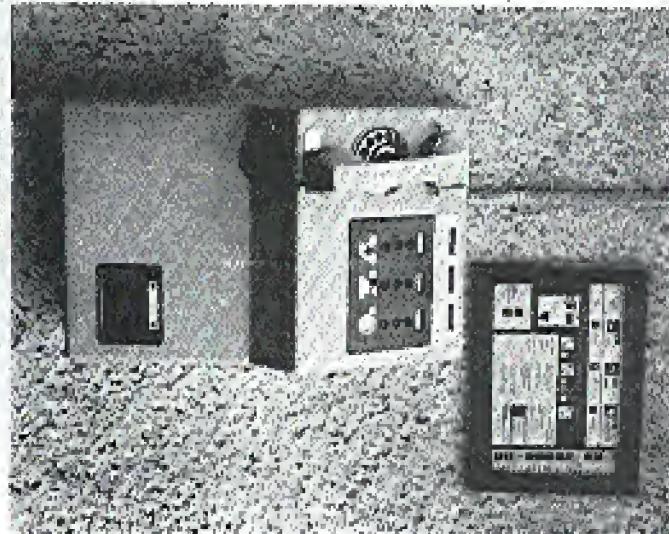
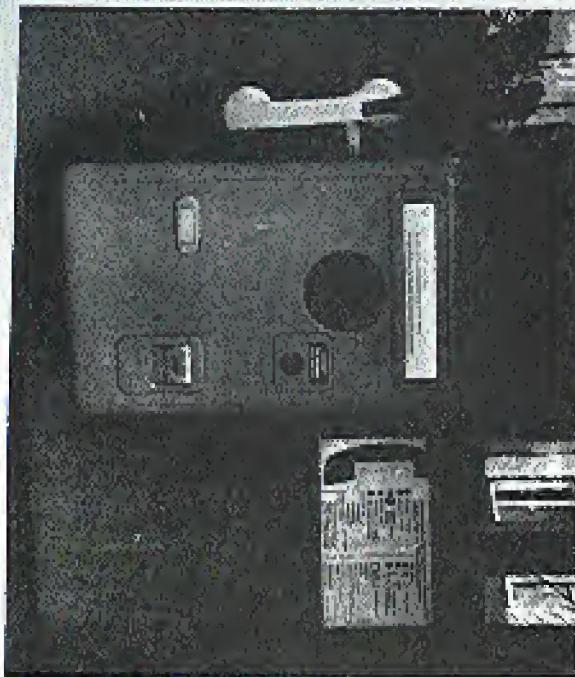
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# COMMUNIST PAYPHONES

Seen in the streets of East Berlin



## Competition... It's the next best thing to being there.

We've just about had it with this NYNEX / New York Telephone strike. Since early August we in the New York region have been living with substandard service, long delays getting through to information, non-responsive repair service, a suspension of new orders, 50 minute waits for service reps after interminable busy signals, and payphones that never seem to work. Here's an exchange one of us had while trying to reach a service rep. One hour before closing, busy signal. Three phones were set to redial mode, each trying the same number. After half an hour, success! A ring, then a recording. "Due to the work stoppage, there will be a slight delay answering your call. Please hold on, etc." The announcement repeated every minute. Finally, at one minute before closing, a human being came on the line. "Hello I can't hear you," they said. "What?" we

asked incredulously. "I said I can't hear you." Click. We redial. Sure enough, we were connected to their after-hours recording. Please call back when we're open. Right. It gets worse. After going through about a dozen payphones in the streets of New York without a single one working properly, after losing 75 cents trying to make a local call, the New York Telephone operator suggests we place the call using a calling card. "I can't access the billing information because of the strike," she said. "But I do know the surcharge is only 45 cents."

New York Telephone has this incredible habit of fixing their own faults by charging you extra. Another example centers on our tax machine, which, according to our AT&T bill, was calling people in Delaware and staying on for 15 minutes. When we started hearing from people who were trying to send us faxes but were instead

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# Grade "A" Hacking

by The Phage

## What is UAPC?

UAPC stands for University Applications Processing Center. This is a computing and data processing facility that deals with academic record keeping and processing. One of their jobs is to process student applications for CUNY (City University of New York) schools. Another job, and this is the part that interests us most, is to process student records for the New York City public high schools.

Nearly all New York City public high schools are connected to UAPC. There are 115 public high schools in New York City (with several hundred thousand students). The reasons for interconnection are obvious. If every school had its own student data storage computer, its own proprietary software, and its own staff trained on that particular system, the cost would be too great. Not only that, but data transfer and statistical analysis would be impossible for the school system as a whole. As an example, there would be much paperwork, absent from one school to another. Computing the drop-out rate and other valuable statistics like standardized test scores would involve every school sending in records generated by its own computer system, and hence more paperwork, more bureaucrats, and more confusion.

So now you understand why all NYC high schools are linked by modems to this one computer. All grades, attendance, course records, and schedules for every New York City high school student are stored and processed at UAPC.

Where is UAPC? UAPC is located in Brooklyn at Kingsborough Community College (across from Sheepshead Bay at the far end of Manhattan Beach). The actual computers and personnel are in Building T-1 (or simply Building ONE). If you happen to go trashing there sometime, building T-1 is a one story tan colored aluminum shed. It looks sort of like a gigantic tool shed. Above the entry

door is written "ONE" in large black plastic lettering. By the way, you're allowed to go in. Nobody is going to check ID or anything like that. If you look like a student, no problem. The reason for this is that T-1 connects to T-2, another shed (blue in color) which has many classrooms. The actual UAPC office is directly to your right as you enter T-1.

In each New York City high school, there is something called a "program officer". This person usually contains terminals and big

## "If you go to a New York City public high school, the chances are 95 percent that your school is on UAPC."

primers, and it's where each school creates class schedules for teachers and students, among other things. The staff that work in these offices are trained at UAPC.

### Technical Information about UAPC

Enough background, here's the scoop. UAPC computers run on IBM mainframes (IBM 370 and 3090). The virtual operating system that is used is MVS (which is much like the familiar VM/CMS). On top of MVS runs Wybur (pronounced will bur, not white-bur), which is sort of like a command shell plus a batch language plus an editor all rolled into one. On top of Wybur, run the actual applications (jobs) for processing of grade files.

There are several applications for various tasks (entering grades, entering attendance, class scheduling, generating transcripts, and various other reports). These applications are written in a batch

like language and are stored on disk in source code format. The reason for this is that each school has its own way of doing things (i.e., naming conventions for classes and sections), and the batch programs can be modified by either UAPC or qualified people who work in each high school's program office. These applications are submitted to run on the IBM machines with the JCL (job control language) appended at the top of each application.

Each school connects to UAPC via a terminal and modem and each school is allocated its own directory (or library) as the batch bases (all them) on the system. This directory contains the applications (jobs) that the school uses each day for various activities. Data files are also contained in these directories. The data files are in a pretty much IBM standard format (although stored in EBCDIC instead of ASCII). Input records for each application are usually fed in using punch-cards or scantron type readers at the local school. If you've ever gone to a New York City high school you'll know what I mean: the attendance punch-cards are brought down each day from each homeroom to the program office. Also, each teacher would fill in attendance forms (used to detect class-cutting) using a number 2 pencil. Those forms look like the test forms for the SATs.

Sometimes, however, input is entered manually at the terminal in the program office, usually for query type jobs. For instance, if one student lost his class schedule and wanted a replacement, he would have to go to the program office and ask for one. They would run that application on the terminal, print up a schedule for that student, and give it to him.

### How do you know if your school is on UAPC?

If you go to a New York City public high school, then the chances are 95 percent that your school is on UAPC. If you are not sure, look for the "elcome signs" at your school. Does your homeroom teacher use punch-cards? Is your transcript laser-printed

on white paper and divided into nice columns grouped by academic subjects? Does your school's program office contain terminals and printers? Is your class schedule (a.k.a. program card) printed on 5.5" x 7" paper (either heavy-bond white or thin-bond blue)? Is your grade report (a.k.a. report card) printed on computer paper, about 5.5" high (regular width) with a blue Board of Ed logo in the middle, with explanation of grades (in blue) on the back? Do you get letters yellow or white laser printed cards in the mail when you play hockey or out classes? Any of those sound familiar, boys and girls? They should, because almost every New York City public high school fits all these categories. If your school fits any of these (especially the punched cards and terminals in the program office), then you can be sure that your grades are lurking somewhere in the bowels of UAPC.

### Logging on to UAPC

To get on, you're going to need a dial-up. It's not too much work getting the dial-around the program office at your school, you should find it written down somewhere. However, I will save you some time and tell you that there are at least 12 dial-ups for UAPC in the 712-332-51XX number range and several in the 712-332-55XX range. There are many more elsewhere (usually exchanges local to Kingsborough Community College).

You should only connect to UAPC on school days during school hours. You can connect to UAPC at either 300 or 1200 baud. However, in an effort to thwart people for littering their dial-ups, UAPC will not print anything to the screen unless you connect at the right format and hit a few of the right keys. Therefore, you should use the following procedure in order to connect: Call at 300 or 1200 baud, using 7 data bits, even parity and 1 stop bit (7E1), and local echo (or half duplex). Once connected, hit the RUBOUT/DELETE key (ASCII code 127 or 255 [hex \$7F or \$FF]) three times, and then return twice. You will be greeted with the

## Grade "A" Hacking

following:

UAPC MVS300A LINE — 10-TEN 11:59:02  
03/22/89

11:59 Wednesday 03-22

You are signed on to UAPC. Have a  
good day.

TERMINAL?

When you are prompted for the terminal, just enter a letter-two-digit combination (A00 works just fine).

You will then be prompted for "USER?", which is your school's login ID. The format for the username is \$USxx, where xx is a two-letter abbreviation for your school's name, and x is a digit from 1 through 9, indicating the particular account used by the school. N is usually 1, 2, or 3. An example of a user ID is \$HSST1 or \$HSST2 which are the user ID's for Stuyvesant High School in Manhattan.

You can guess at your school's user ID (it's easy enough, for instance Sheepshead Bay High School would be \$HSSSB1 or South Shore High School would be \$HSSS1, etc.), but a better way is to pick up the trash from the program office. You should find stacks of green and white printer paper that is 132 columns in width. The user ID will be almost everywhere throughout most printouts generated. Remember to look for the \$HSxx format.

After entering a valid user ID, what you will see next depends on several things. Normally you should see the "PASSWORD?" prompt, but on some accounts you may also see a "JOB?" or "KEYWORD?" prompt. This simply depends on the school, however 90 percent of the accounts only ask for the PASSWORD. The JOB and KEYWORD are simply additional passwords. However, every user ID has a PASSWORD on it, usually only \$HSxx. The accounts have JOB or KEYWORD passwords. However, those schools have several accounts (usually 2 or 3), and the \$HSxx and \$HSxx3 will usually have only the

"PASSWORD?" prompt. There is no difference in access privilege between the various accounts at each school. They are simply there so that more than one terminal at each school can be logged in at the same time.

### Getting The Password

Naturally, you're going to need the password if you are serious about doing anything with UAPC. There are several options here. However, one option that I would not recommend is that you attempt to hack the password by brute force. UAPC has a nasty habit of allowing you 4 attempts at the password before it disables that account and notifies the security dudes at UAPC. If you disable your school's account, your school's program office must call UAPC by voice in order to reactivate it. There is a way around this, if you really want to brute-hack the account. After three password attempts, you should hang up and redial, and then do another three attempts, and so on. This will keep the computer from ever reaching 4 and disabling the account. Although it's a pain in the neck, there isn't much we can do about it. However, if you have no plans of ever getting into UAPC and just want to annoy your school, simply log on as them early each morning and disable their password. This will give them a headache to say the least, having to call up UAPC each day to re-enter their password.

Other ways of getting the password include our old favorite, social engineering. Here there are two options. You can attempt to engineer UAPC by voice, thus saying that you are the school and that you need the password. Conversely you can tell the password. Conversely you can attempt to engineer the school by calling the program office by voice and saying that you are from UAPC and that you need them to change their password to a diagnostic password. However, every user ID has a word which you will so kindly provide. If you're going to do social engineering, make sure you get some valid people's names at either UAPC or at your school.

Yet another way to get the password is

thus: keys are numbered locally, meaning that you will see the password on the screen as it is typed. I know this for a fact. If you're hardware inclined, you can tap the line that connects to the modem and terminal. These lines are usually not connected to the school's switchboard, and can even be exposed outside the building itself. Use a tape recorder and a Radio Shack auto-punch device to tape the transmission (which is usually 300 baud anyway). Play the tape into your own modem (set it on answer), and you'll be able to see the original data (including the password) on your screen. If you haven't tapped modem lines before, do not suggest using this method.

Note that UAPC requires each school to change their password once a month, so make sure you get the password right after they change it. This will give you plenty of time to learn how to use UAPC before you attempt any starts with modifying data.

### All About Wybut

Okay, you're in UAPC, what now? Well, once in you will be dealing with Wybut. Like I said before, Wybut is sort of like a command shell plus batch language and editor all built into one. You will know you're in Wybut when you are given a "COMMA.WYBUT?" prompt.

There are some misconceptions about Wybut that I would like to clear up right now. When most New York City hackers talk about the "grades computer" they simply refer to it as Wybut. This is misleading because they are referring to UAPC. Wybut is not synonymous with UAPC, the Wybut shell is used at many different computing sites which use MVS and VME mainframes. It's sort of like equating XENIX to the computers at DEC. VMS is an operating system and has very little to do with the

ring around the program office. They usually do not have the password written down.

But, and this is important, you can get the password if you can somehow manage to look over the shoulder of the terminal operator when he/she is logging in. Remember, they connect to UAPC at half duplex, and

thus keys are numbered locally, meaning that you will see the password on the screen as it is typed. I know this for a fact.

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now.

SAVE *filename*: save your active area.

USE *filename*: load the file "*filename*" from disk into your active area.

COLLECT: Input/enter data into your active area.

CLEAR ACTIVE: clear your active file in memory.

PURGE 055: purge job 055 which is on the output queue.

COLLECT: Input/enter data into your active area.

SHOW DIR: show current files in your directory.

SHOW USERS: show current users on UAPC.

SET KEY: change your keyword.

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SHOW USERS: show current users on UAPC.

USE *filename*: save your active area.

COLLECT: Input/enter data into your active area.

SAVE *filename*: save your active area.

SET PSM: change your password.

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## Grade "A"

## Hacking

ing HELP HELP (yes, twice. One HELP will not do the trick).

Applications That Run on UAPC.

Once inside UAPC, you may have very little contact with Wybut itself, and you will see a "WHICH JOB?" prompt instead of the "COMMAND?" prompt. The reason for this is because most of the time the applications are all submitted and accessed from menus that are run by batch files which execute when you log in.

Thus, the system is very limited. You may see a menu that asks you if you want to view a transcript, view a schedule, admin a student, dismiss a student, cancel a student, add classes, delete classes, etc. You simply choose what you want to do. via these menus you will be able to do anything that the school administrators can do, including changing grades. Sometimes, however, there are no menus, and you will have to execute commands yourself. A list of these commands can be gotten using one of the HELP menus. Here are some of the jobs you can execute: ABSCHL, ABSINFO, ABSREP, ACADHOP, ADAM, ADPINFO, ADDSECT, ADDROP, ADHPLST, BATINFO, ASSNO, CLASSLT, CODELIST, CUTINFO, CUT, DEL, FIXCODES, FIXFCFL, HITRAH, GRDUDOT, LATCOP, LATING, MAIL, MSGDPT, OFCLIST, PUNROST, REGS, TER, REBOPR, REQINFO, REQDPT, SCAN, SCHEDULE, SKED, TRAIN, TRAKDPT.

You can drop straight into Wybut by sending a <BREAK>. This will cause your menu shell program to stop executing. If you happen to leave the menu system and drop into Wybut with its "COMMAND?" prompt, you can get back to the menu system by Spring RUN. This will execute the menu program starting a job (i.e. to change a grade), the job will be executed and the output will be placed on the tenth queue. If you don't want to leave & exit, then you

must use one of the above Wybut commands to find and PURGE the output of your completed jobs. If you do not PURGE the output, it has a good chance of being printed out at the program office when they print the output of all the jobs that they submitted.

### Changing Grades

Clearly, this thought has crossed your mind in the past few minutes, so let me begin by saying that I do not recommend changing any records on UAPC. You can use UAPC to get all kinds of useful information on people and never get in trouble.

If you do hope to change grades and get away with it, there are several things to consider. You must remember that your guidance counselor has physical backups of all your grades in his/her little notebook. If

you've gone to your counselor for advice on which classes to take, you're recognizing the book of which I speak. The grades in this book are not generated by UAPC but instead entered into the books at the end of each grading period by the same person using a pen or pencil. This physical record is only used as backup in case UAPC gets wiped out or something like that. Comparisons between UAPC transcripts and the physical record are almost never done, unless there is some kind of an agreement between the student and the school regarding the transcript itself. If you do plan to make a clean run, you had better cover all the angles. This means taking some shoddy kid to borrow the books to see the while so that you can make some modifications, give the date 9/29, and make sure he doesn't know who you are.

### Grade Pigs

Before modifying either your physical record or your UAPC grades, I would strongly suggest using a Grade Pig test subject. What this means is that you should pick some kid, any kid, who goes to your school and that you have never met and never plan to meet, change their grades for a few days, and watch what happens

keep a close eye on your best subject. If you notice the kid getting suspended or teachers agents running around your school or something like that, you know that you better not mess with UAPC, at least not in your school anyway. If nothing happens, then you should decide whether to take the risk of changing your own grades.

If you consider the use of innocent human guinea pigs to be distasteful, then you had better be prepared to risk your ass by using yourself instead. I do not consider it to be distasteful, but then again I am devoid of all ethics and morals anyway.

## Enough Already

(continued from page 3)

getting strange human beings in another location, we realized what had happened. Again. An incompetent repairman had rotted our fax line into someone's house. They got our calls and we got their bill. Apparently, the problem was fixed without us ever being notified. New York Telephone says there's no way for us to get credit for the local calls these people must have made or for the service interruption because what happened to us simply wasn't possible. If we wanted more information, though, we

could obtain a local usage list for only \$150.

In 1984, we made reference to the AT&T strike of 1983. The strikers weren't paid, the customers were charged full price for poor service, and the company made lots of unearned money. The same is true today of NYNEX/New York Telephone. With all the confusion that disjunction brought, we now at least have options to AT&T. With New York Telephone, there is no choice. No competition. And it's high time there was.



You can still bail out at this point and your life will proceed normally. However if

you do change your grades (both physically and on UAPC) and nothing happens to you for several weeks, you can be almost 100 percent sure that you got away with it. Since both records (physical and UAPC) have been changed, there can be no discrepancies. Only your previous teachers will know what grades they gave you, and by now they will have forgotten who you are. Only your transcript speaks for them now. If you do get away with it, you can start mailing out those applications for Stanford and MIT.

# THE GALACTIC HACKER PARTY

The Galactic Hacker Party could very well have been the strangest gathering of computer hackers ever to have assembled. It wasn't just a meeting of silicon-heads who talked binary for three days. It wasn't simply a group of rowdy individuals out to give the authorities a headache and cause general chaos wherever they ventured. Nor was it merely an ensemble of bizarre, crazy, and ultra-paranoid types, like the ones who make it to the 2600 monthly meetings in New York. The Galactic Hacker Party was all three of these put together, and a good bit more.

The conference took place at the Paradiso Cultural Center in Amsterdam on August 2nd, 3rd, and 4th. Hackers and techno-rats from all over the world converged on the scene, some remaining for quite some time afterwards. Information about computer systems, phone systems, famous hackers, governmental regulations, privacy abuses, and new toys allowed freely and openly. Since there are no laws against hacking in The Netherlands, there were virtually no restrictions placed on anybody.

Representatives from the Chaos Computer Club (West Germany), Hack-Tic (The Netherlands), and 2600 met for the first time, along with hackers from many other countries. We tried to figure out the best way to pool our resources, to share information, and to support one another's existence. It was most heartening to see other people

in strange and distant lands who also had developed an initiation with knowledge and a strong desire to share it. It was at the same time a bit disconcerting to see this enthusiastic spirit, and to see this anti-authority spirit, and to see this strange back home in America.

Like any good conference, the best things happened behind the scenes. That's where the contacts were made and the methods divulged. Press from all over the world showed up, as did people from all walks of life. It was a curiosity shop, a coming together of inquiring minds.

But enough poetics. What does this all mean? Well, for starters, it's injected us with some new enthusiasm and some brand new knowledge. We tend to forget that there's a world of diversity out there, different lifestyles, alternative ways of accomplishing things.

The Germans taught us the importance of organization. In Hamburg alone, there's at least one meeting of hackers a week. They play with computers, compare magazines (in West Germany there are several magazines that deal with hacking), and figure out their various strategies. Hacking is much more political in West Germany than any other country.

The Dutch showed us how, above all else, having fun is what really matters. Learning about the things that you're really interested in can be the most fun of all. In The Netherlands, what the authorities do or think is less than secondary.

The openness of Dutch society helps to foster this healthy attitude.

We, the Americans, shared our beloved and practical hacking traditions, like the art of trashing.

Almost as soon as we raided our

first trash bin, the anti-authority Dutch figured that the dumpster of

a police station would be the best

place to get info! We must now live

Dominican Republic: 800-872-

2881; Finland: 9800-100-10;

Greece: 00-800-1311; Guatemala:

199; Hong Kong: 008-111;

Hungary: 00-36-0111; Italy: 172-

1872; Denmark: 0430-010;

Dominican Republic: 800-872-

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2881; Finland: 9800-100-10;

Greece: 00-800-1311; Guatemala:

199; Hong Kong: 008-111;

Hungary: 00-36-0111; Italy: 172-

here are the USA Direct numbers from various countries:

Australia: 0014-881-011; Austria: 022-903-011; Bahamas: 800-872-2881; Belgium: 11-5010; Bermuda: 800-872-2881; Brazil: 000-8010; British Virgin Islands: 800-872-2881; Cayman Islands: 1872; Denmark: 0430-010; Dominican Republic: 800-872-2881; Greece: 00-800-1311; Guatemala: 199; Hong Kong: 008-111; Hungary: 00-36-0111; Italy: 172-1872; Jamaica: 0-800-872-2881; Japan: 0039-111; New Zealand: 000-911; The Netherlands: 06-022-9111; Norway: 050-12-011; Singapore: 800-6011; St. Kitts: 800-872-2881; St. Martin: 800-872-2881; St. Vincent: 800-872-2881; Switzerland: 046-05-0011; United Kingdom: 0800-89-0011; West Germany: 0130-0010.

Now you may be curious as to why we printed those numbers if they're such a rip-off. Because it doesn't have to be a rip-off if you're smart about it. You can use USA Direct to call person-to-person collect to someone who isn't there. The person who answers will then get your number and call you back. No matter what service they use, the cost will be substantially less. The USA Direct is also a great way to get free directory assistance for anywhere in the U.S. That's right, they charge 60 cents per call over here, but from overseas it's free!

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# British Telecommunications

The following plea was sent by British Telecom to the British people. British Telecom is asking customers to be patient - and to listen for the changes which are taking place as a result of its annual multi-million pound investment programme.

Many people dislike change. Others may feel changes are of questionable value. A lot of money is being spent - but on what?

That old familiar sight, the red telephone box, is disappearing from view. Some people see this as a change for the worse - yet the new tough, easy-clean booths, with clear telephone keypads make life a touch easier for thousands who would not or could not previously use a public telephone.

A few people even dislike having a push button, digital phone in their home, instead of the old dial, variety - yet without the switch the vast potential of telecommunications technology could not be unleashed.

Questions are often raised about the high numbers of bright yellow vans spotted around the country, and the traffic problems they sometimes cause. But British Telecom engineers often have to park at inconvenient points temporarily, simply to carry out installation and repair work.

British Telecom is working hard to improve service to its customers, and to offer the best possible value for money. Most people will have heard about the network going digital, and ultimately this will revolutionise the way we communicate.

However, until all the cables and equipment are in place to link up the entire country, the customer down the road may not fully appreciate the changes which are taking place.

Once the actual telephone exchange which your line is connected to goes digital, it can open up a whole new range of communications possibilities. Under an optional package of Star Services, calls can be forwarded to another number anywhere in the country under automatic call diversion - invaluable, for example, for the door-man

business which needs to stay in touch 24

hours a day. A big advantage is that callers need only ring one number - whatever you happen to be.

All you need is an approved multi-line quarry phone which plugs in to the usual socket.

Another option is a three-way calling conference facility, where business meetings can be held down the telephone line. It can also be used for family conferences.

Think of the savings on telephone bills!

Other developments will be useful to the non-business user. Itemised billing is being progressively introduced, and another facility will enable you to ring a number and check immediately what a call has cost.

The all-talking, singing, dancing exchange is just around the corner, with everything geared towards helping the customer get the best possible use out of the phone.

The average digital exchange is capable of transmitting around 250 messages, from helping you to find out what a call has cost to sending a polite message to remind you to replace your handset. If polite requests fail, it resorts to a Howler - a screech which will start you even if you do happen to be at the bottom of the garden!

The inside of the exchange has been transformed, too. The old, conventional switching equipment has been replaced by rows of blue and grey cabinets housing reprinted circuit boards.

One floor of equipment replaces what used to take up two floors, and the technology is getting more compact all the time. The new equipment is cleaner, virtually maintenance free, and much quieter.

If a fault occurs, the card controlling that particular line is replaced with another, and the problem card is sent away for repair.

The size of the mainframe computer has also reduced, and the battery back-up units are clean and maintenance free.

It all heralds another world, but although the 'character' may have changed, the new hi-tech equipment is making everyone's life

# The death of COSMOS?

In the summer edition of COSMOS Currents, a newsletter put out by Pacific Bell/Pacific Telesis, the death of COSMOS is said to be on the way. "Tired of those old outdated dial-up COSMOS TTY43's?" one of the articles reads. "Well, get ready to kiss them goodbye. To better secure COSMOS, all dial-up machines are being replaced with Private Line terminals. Funds have been approved for their removal, to be replaced with new CITOH 326's (or some equivalent hardware). This project is being done to comply with the Pacific Bell Security Information Policies, and to prepare the way for the eventual replacement of COSMOS with the new SWITCH product."

All that we know about SWITCH is that it used to be called ASCOT and that there was an article about its future in the spring edition of COSMOS Currents. They go on to brilliantly deduce that "the main cause of hackers breaking into the COSMOS database has been access to the dial-up COSMOS network. This project will eliminate that threat. What remaining staff and Systems Technology personnel that must remain on dial-up circuits will be secured through other means (i.e., tokens)." Tokens? As in coins? Token minorities? What could they be referring to?

"More users for COSMOS" also translates into more people that have access to the database, and hence the opportunity to degrade its integrity. The long range answer to many of these types of concerns will be forthcoming with the availability of SWITCH in the early to mid 1990s.

Until then we are the stewards who must keep COSMOS running efficiently [sic]." And then a few rousing choruses of the company song.

A new telephone number has also been announced for the COSMOS Client Community that encompasses everything from simple repair to the COSMOS Hotline, MIZAR Hotline, the CCTACs, the DTTAC, placing an order, etc. That number (811-DATA) can only be reached from within California and is answered by a voice response unit that directs the call.

Has anyone else heard anything about SWITCH or its equivalent in other parts of the country? If so, forward the info here.



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anonymous bunch.

(continued on page 30)

## Technological Marvels

US Sprint swears that its billing problems are ending. They're introducing a new system meant to replace all the old systems that never quite agreed to forced integration. Does this mean that Sprint will stop sending us bills for six-month old calls? Stay tuned. (By the way, it's perfectly all right to pay those bills six months late. At least with us it is.)



Get ready for the new Sprint Voicecards. Now in the testing stage, they may soon become commonplace. This is how they say it will work: "You begin by taking the first two steps you would take in using the US Sprint FON Card. You dial the 800 number and punch in the number you're calling. Then, instead of dialing your FON Card number, you dial an easy-to-remember number, such as your birth date, and give a two-second personal verbal password." If the technology is a thousand times better than Sprint's billing system, it just might work. Of course, then it will be subjected to another more sophisticated testing stage: us.



Voiceprints of another sort are being tested in Suffolk County, New York. The authorities are experimenting with an "electronic beehive" system, similar to ones that seem to be popping up all over the nation. It works like this: the "system" calls a prisoner on probation at his home at any time of the day or night. When the person answers, the computer tells him to hang ten (thereby assuming he/she has had a college-level education). If the voice doesn't match the one in memory, a

probation officer's beeper goes off and the prisoner gets a visit. It seems easy enough to fool for now. A series of tapes would be good enough to act as a substitute for the real voice and they could be played on demand by an accomplice while the prisoner is on his/her way to a new location.

And once he/she gets there, call forwarding will take care of the rest. Naturally, the solution to the shortcomings will eventually be cameras. It's probably better than prison, but a giant step closer to Big Brother. Not to worry, it's for our own good, remember?



And speaking of surveillance, guess what Nielsen Media Research has come up with? A brilliant new way of finding out what people are watching on television that's what! You guessed it, cameras, no bigger than a breathalyzer, that would, according to the *New York Times*, identify members of a household and record, second by second, when they are watching television, when they leave the room, and even when they avert their eyes to read a newspaper. The Nielsen people think it'll be a big hit because people won't have to do anything. The device will focus on facial features, first deciding if a face is recognizable and then whether or not the face is directed toward the set. Twenty-four hours a day.

## Hacker Spies

You may have heard of some computer hackers being indicted in Hanover, West Germany for KGB spying. While some media have reported a link between these people and the Chaos Computer Club, we find no such link at all. What many fail to realize is that Chaos reports hacking activi-

ty to the world, much like 2600. They see not themselves actively involved. Remember this the next time you read sensational reports in the papers.

## Nyxex Bigotry

One we somehow missed last year...it seems the Nyxex Yellow Pages has problems with the twentieth century. Nyxex of Price Incorporated is a Manhattan-based gay and lesbian organization. When Nyxex asked them what category they wanted to be listed under in the phone book, they

responded with "Gay and Lesbian Organizations". That wouldn't, said Nyxex, complain with the New York City Human Rights Commission, charging Nyxex with violating the city's human rights ordinance which prohibits discrimination on the basis of sexual orientation. A category for homosexual groups in Manhattan could easily correlate over 100 listings. We're not sure how it turned out because we can't get hold of the new yellow pages (Nyxex strike). Regardless, it will no doubt be replayed all over the country.

## Dial-It News

Pacific Bell has a new 960 service classification. The 505 exchange will be used for chat services, 305 for sex talk, and 844 for everything else. Also, a recorded message at the beginning of the call must give the charges. And if charges for either 960 or 976 calls exceed \$75 in one month, Pacific Bell will send you a letter telling you what a fool you are.



A way to get out of chat with all of

the 960 phone numbers that charge absurd prices. Unlike just about everybody else in the country, 976 numbers in parts of California are reachable from other parts of the country. This means that you'll only be charged the rate to California, which can be substantially less than a local call to a 976 number, especially straight. It seems that Pacific Bell lacks either the authority or the inclination to block these calls. But it's possible that your local company may have put a block on its end. In which case you'll be denied access. Also, only one long distance company seems to complete calls to 976 numbers: AT&T. All the rest will give you error messages of some sort. Some numbers that are reachable: 213-976-WAKE, a computerized wake-up service which is only good for waking people up in California, 415-976-4297 and 213-976-9769, a couple of "hot" conference lines, and 213-976-1610, a computerized matchmaker service. Given all "aerinet" prices, we think you'll feel ripped off.

## Payphone Choices

Three-quarters of the owners of payphones for operator-assisted calls on these phones, MCI got 10 percent, Sprint 8 percent, and all of the little companies got the rest (around 7 percent). Some of these little companies are AOS companies, which often charge exorbitant rates and try to make customers think they're using AT&T. These percentages are in line with the choices made by residential customers.



The Missouri Public Service Commission has outlawed AOS companies

in businesses (hotels, malls, etc.) and in public phones, saying that these services are not in the public interest. However, consumers are still free to be ripped off within their homes if they so choose.

## Overseas Access

AT&T is reportedly trying to get permission to make calls to Vietnam, one of a few countries that are impossible to call from the United States. When dialing overseas, there are two possibilities: either you can dial the country direct, assuming you have direct overseas dialing capability or you have to go through an international (IC) operator who places the call for you, sometimes after a lengthy delay. But then there are countries like Vietnam, where there is no access at all from the United States. Usually, it's because of an aggressor or a war or something of that nature. But things are looking optimistic for a connection with Vietnam since the government there appears interested in having AT&T bring its phones. An agreement also appears imminent for direct-dial service to the Soviet Union (7), now reachable only through an operator. Some other countries that are currently unreachable are Cambodia (355), North Korea (850), and Albania (355). Numbers in parentheses are those countries' country codes. Vietnam's country code is 84. If anyone knows of other unreachable or has an alternative way of reaching those countries, let us know!

## News From The U.K.

Waiting for directory assistance in England are commonplace. To help alleviate this, the voice of actress Julie Berry will soon speak the desired phone number to customers. It's estimated that this will

reduce operator time by one third. The public phones, saying that these services are not in the public interest. However, consumers are still free to be ripped off within their homes if they so choose.

reduce operator time by one third. The automatic voice response (AVR) works like this: the operator searches for the number in the usual way by asking for name, locality, and street. The operator keys this information into the computer. The system then displays a list of possible numbers on the screen. The operator pushes a button on the keyboard to identify the registered number and switches over to AVR. The AVR equipment assembles the number message from its store of exchange names (a major difference from the U.S.) and numbers recorded by Julie Berry and then gives it to the caller. For example, "The number you require is Ipswich, (473), 227848. I repeat, (473), 227848. Please hold if you need to speak to an operator."

Ms. Berry had to record all of British Telecom's 6,000 exchange names plus the full set of numbers and number combinations, in the different inflections with which they are spoken, depending on their position in the complete number. For example, the last four digits in the number 01356 5366 are spoken "Five three double six"; the inflection on the double six in that position is different from that used when the number "double six five three" is spoken. Recordings of exchange names of uncertain pronunciation were sent to British Telecom operators in the relevant localities for checking, and if necessary, recording. For some Welsh names, a Welsh operator sat with Ms. Berry during the recording to make sure the name was spoken correctly. Earlier this year, call handling time was also reduced by introducing a recorded message at the beginning of the call, much like the systems to use in the United States. Each of British Telecom's 10,000 directory assistance operators records an opening message of

"Directory enquiries: what name please?" that is heard by the caller as the call is being connected. All of these time-saving measures will bring the average human operator time down from 39 seconds to about 25 seconds.

## IT

British Telecom is expected to buy Tymnet from McDonnell Douglas for \$355 million. Tymnet is one of the world's largest data networks, with local access in 750 U.S. locations. It ought to be interesting having a British phone company running America's second largest public data network. Tymnet is, of course, number one.

## IT

Charlines have been banned by British Telecom. They had been operating on two special exchanges: 0898 and 0077. BT cut off service to eight companies that didn't obey their order. A spokesperson says, "Reports from customers and our own inquiries suggest that some lines, not normally used for charlines, may have been switched to that purpose. We are continuing to monitor the many thousands of telephone lines which have the capability to be used for charline services and will cut them off as we track them down." They've also set up a switch line (0072) 25280 for customers to call if they know of a charline. By British Telecom's own definition, the ban effects any call in which more than two people take part in a live conversation. We all know how dangerous that can be.

## One Less Choice

As of August 1, The Source Information Network no longer exists. CompuServe bought its main competitor and promptly shut it down.

"Directory enquiries: what name please?" that is heard by the caller as the call is being connected. All of these time-saving measures will bring the average human operator time down from 39 seconds to about 25 seconds.

According to *Boatwatch Magazine*, Representative George Gekas of Pennsylvania has introduced a bill that would require BBS operators and information services to provide names and addresses of persons suspected of using communications networks to commit crimes without requiring a search warrant. The bill (House Bill 2082) could also force phone companies to give this information again without a search warrant. It's been a bad summer, folks.

## IT

The Commissioner of Immigration and Naturalization, Alan C. Nelson, has proposed a nationwide computer system to verify the identities of all job applicants in order to halt the widespread use of fraudulent documents by illegal aliens seeking jobs. Similar nationwide computer databases are being suggested repeatedly by various governmental agencies. So far, Congress has been successful in preventing this because civil liberties can still be found in their dictionaries. How much longer do we have?

## IT

Scotland Yard is busy storing information in electronic databases. Things like electronically processed fingerprints, suspects' photographs, and full criminal records. When the system is ready (by the end of 1990), police officers will be able to find out everything there is to know about a person within minutes. The fully digitized fingerprint records could allow a detective to send an image of a fingerprint found at the scene of a crime and receive within minutes the name and criminal

record of the suspect. The system is known as PNC2. Another system, called HOLMES2, will be used to spot discrepancies in suspects' stories. The example they use says that if a suspect gives two separate police forces differing stories, the computer will instantly catch the discrepancy. Policemen just hate being lied to, don't they?

## •

The Christian Science Monitor reports that Americans are so concerned with getting tough on drugs and crime that they've become lax on privacy concerns. "Anybody with the intelligence of a turnip has to be concerned about the potential" for abuse, says Clifford S. Fishman, a law professor at the Columbus School of Law of Catholic University. According to James A. Ross, president of Ross Engineering Inc., some new phone systems have built-in monitoring capabilities, allowing a person to listen in on others' conversations. It's become much easier to "wiretap" a line. Often it can be done by computer. Experts are increasingly concerned about illegal wiretapping by private individuals. A growing number of private detectives and police forces appear to be engaging in this activity, with little chance of being detected. The current hysteria over drugs and crime make it all the more unlikely that Americans will be concerned about civil liberties.

## •

And Robert Morris, the writer of the Internet Worm, is facing 5 years in prison and a \$250,000 fine for that bit of mischief. The 24-year-old was indicted on a single felony count under the 1986 Computer Fraud and Abuse Act. Nobody was hurt, no valuable data was lost, and we all learned to keep guns out of the hands of felons. Every citizen will be required to carry a "personal smart card". This card would contain your life story, including any criminal activity. Gun dealers would never let a criminal buy a gun, right? And if you're not a criminal, you've got absolutely nothing to hide. So everyone will be safe. And happy. And brain-dead, given time.

## Hackers In Trouble

Kevin Mitnick, the computer hacker featured in our spring '89 issue, will have served a year in jail this December. At that point, he is to be transferred to an addiction clinic for six months, in order to help cure him of his "disease". After separating the Minotaur myth from the reality, the authorities backed away from many of their original allegations. "A lot of the stories we originally heard just didn't pan out, so we had to give him the benefit of the doubt," said James R. Asperger, the assistant U.S. attorney who handled Mitnick's case.

## •

2600 received many calls from the media in the days before the dreaded "Friday The 13th Virus" was supposed to strike. We tried to tell them not to panic but it didn't work. Some people actually were given the day off because their employers didn't want the computer to power up on that day. Once again, the media fueled a nonexistent fire. We'll repeat here what we told them. Viruses can occur at any time. The odds of being infected are relatively small. The odds of being adversely effected are next to nothing if you take some basic precautions: know the source of your software, keep backups religiously, don't let fools tell you what to do, etc. The viruses set to go often repeat themselves. The 12th and 13th are no different from any other in that relatively few people will ever see them.

The only difference is that we know about it beforehand and have plenty of time to let our imaginations run wild. We suggested that users who were concerned could simply change the date on their computer to the virus date to see if anything unusual happened.

After all, the computer doesn't really "know" the date, right? The media didn't go for that, saying it was too technical.

The Justice Department has a neat idea to keep guns out of the hands of felons. Every citizen will be required to carry a "personal smart card". This card would contain your life story, including any criminal activity. Gun dealers would never let a criminal buy a gun, right? And if you're not a criminal, you've got absolutely nothing to hide. So everyone will be safe. And happy. And brain-dead, given time.

## •

13 employees, but it refused to identify them or describe their punishment.

## The Justice Department has a neat idea

to keep guns out of the hands of felons. It is wasting everyone's time on this beyond us. They must prove that Morris intended to cripple the Internet by releasing the worm that wound up disabling thousands of machines on November 2, 1988.

We've obtained a copy of the source code to the worm. If you want to judge for yourself, send \$10 to 2600 Worm, P.O. Box 752, Middle Island, NY 11953.

Hacker Fun

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Persons attempting to call the probation office in Delray Beach, FL, early in June were connected to a phone sex hotline operated by a woman named "Tina" instead.

According to Southern Bell, someone accessed the central office with a modern

and reprogrammed their computer in such a

way that calls intended for the probation

office were instead routed to a New York

based phone sex line. "People are calling

the Department of Corrections and getting

some kind of sex palace," said Thomas

Slinghoff, a spokesman for the Palm Beach

County Probation Department. Southern

Bell officials said it was the first time their

switching equipment had been maliciously

reprogrammed by an outside computer

intruder. Southern Bell provides the local

private service for Florida, Georgia, North

Carolina and South Carolina.

## Telco Literature

What kind of people are the phone

companies hiring as writers? This blurb

was spotted in the July/August issue of the

MCI customer newsletter, MCI

Connections: "The sun begins to set over

the Golden Gate. The Bell's been lit. The

oceans sing. A sizzling steak brings back

memories of the summer of '82...that

rooftop cocktail with Doug. Even though

an important lesson. Why the government

is wasting everyone's time on this

beyond us. They must prove that Morris

intended to cripple the Internet by releasing

the worm that wound up disabling thou-

sands of machines on November 2, 1988.

He proceeded to change the speed limit

from 45 mph to 75 mph. Judges refused

to listen to appeals of these ticketed, saying

"The public should know better than that no

matter what the sign says."

## •

Recently an unknown hacker got into the

computer that controls the speed limit on the

Burlington-Bristol Bridge near Philadelphia.

He proceeded to change the speed limit

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# 4TEL

4TEL is a loop testing system mainly used by General Telephone (GTE) that consists of a Voice Response System and a Craft Dispatch Section as well as the facilities and equipment used for testing functions. The following text will attempt to dispel many of the 4TEL myths that have been created in the past years, such as the idea that it can be used to eavesdrop on lines within its serving area. The information provided has been gained from company publications and from personal experience. A 4TEL is not the same thing as a REMOBS, which stands for Remote Observation.

The portion of the system that much of the pre-breakout population is familiar with is the Voice Response System, which has normal POTS dialups. This system greets the user with an announcement message and then asks for a password, which is entered in DTMF tones. The legitimate use of these dialups is for outside craft personnel (linemen) to call in, perform tests, and receive the results for subscribers' lines. The VRS is provided so craft personnel can access the 4TEL system at times when no one is at the testboard (at nights or weekends). Through the VRS, up to eight craft technicians can access 4TEL at the same time, enabling them to get more done in a smaller amount of time.

After a password has been accepted by the system, the ironic voice will ask for the line number that the user wishes to be

tested. The number entered will be read back to ensure correctly. The system will then ask for the user to enter the mode. The modes are:

#### 1: Calling on other line.

2: Calling on test line.

#### 3: Line test results.

4: Fault location.

5: Test OK, monitor.

6: Hang up.

7: Wait for idle.

8: Monitor test.

9: Enter next line number.

0: When the voice prompts, line tests are possible from both modes 1 and 2 by dialing the octothorpe (#) key. The results of the test will be announced along with the length of the cable in miles. Bridged fingers, if any, will also be noted. Mode 3, the line test results section, will tell the user there are no test results available unless they have been previously entered. The 7 key is the monitor command from both test modes. If there is speech on the line, it will be detected electronically but will not be heard by the user. The monitor command is not 'REMOBS' (Remote Observation) but a method of determining if the line is busy due to normal means (conversion) or due to some trouble condition at the switch. When the system asks for the ID code for a monitor command, the system will accept the line number as well as the initial password, and even a secondary password before dialing, but it has not been determined by the author if this is a standard for every 4TEL. Not just anything will work for the monitor password however, as it will announce if the ID code entered is invalid or not.

If mode 1 is entered, these commands are available:

#### 1: Fault location.

2: Other testing.

7: Test OK, monitor.

8: Hang up.

9: Enter next line number.

0: When the voice prompts, line tests are available:

1: Short location.

2: Cross location.

3: Ground location.

4: Hang up.

5: Hang up.

6: Hang up.

7: Test OK, monitor.

8: Hang up.

9: Enter next line number.

0: When the voice prompts, line tests are available:

1: Short location.

2: Cross location.

3: Ground location.

4: Hang up.

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4: Hang up.

5: Hang up.

6: Hang up.

7: Test OK, monitor.



testing are displayed in plain English, as opposed to decimal or other format, on the screen. A patch decision is also displayed after every line test to determine if a dispatch is needed.

#### SAC's

The SAC is the centralized focal point for 4TEL control and reporting. This computer is located in the repair center and distributes testwork information between CRT's and COLT's. The SAC formats the results of routine testing into a daily advisory report as mentioned earlier.

There are several types of 4TEL reports that are worth noting. The DISPATCH report lists troubles that can have an immediate dis- patch for them. These also tell the location of the fault (cable, CO, station, etc.) and are classified into two types, moderate and severe, relating to how service affecting the problem may be. The CABLE report lists all new cable faults. A plant status report summarizes the condition of the outside plant and totals them per individual exchange. In these reports, trouble conditions can be listed in a variety of ways. CROSSES and WETS refer to line insulation faults and may indicate water penetration of the cable. SHORTS and GROUNDS are insulation faults at the station set. OPENS refer to a broken, or "open" ring or tip lead in a cable pair. BACKGROUND refers to electrical noise caused by power lines being nearby. ABNORMAL VOLTAGE indicates high volt-

age conditions. There are others, but the reader will hopefully get the idea from the ones listed above.

#### CDS

Another major part of the 4TEL System is the Craft Dispatch System, which is a DTMF and speech response setup used to exchange report and schedule information between the repair center staff and outside craftspeople. Linemen call in to get dispatch information that has been previously entered by the dispatcher. CDS plays back the into one field at a time. When the craft personnel is ready to receive the next report, he simply says "Go" and the system continues. A printer at the repair center informs the dispatcher when a craftsman has received a report. When the trouble is taken care of, a completion report is done on the CDS in which it asks for the closeout and schedule, one field at a time, to be entered in DTMF and in speech. The clerk at the repair center then closes the trouble on the SAC/4TEL system after the line is tested a final time to ensure proper operation.

CDS may also have audit trails of every transaction for a certain time period. So to summarize the work flow for involving the CDS:

the customer calls the clerk at the repair center. The information is forwarded to the dispatcher who enters it into CDS. Craft personnel call in and receive the messages, do the required work, then file a completion report. The clerk then

closes out the trouble in SAC/4TEL.

The Digital Concentrator Measurement Unit is another component of the 4TEL testing equipment that is used to test lines in digital concentrators such as the GTE MXU and the NTI-OPM. They are located inside Digital Loop Carrier System remote terminals or

huts and consist of a circuit board and measuring system. It provides AC and DC measurements of subscriber loops, as well as all the normal test/measurement functions such as fault description and location, dispatch messages, and spe- cial tests. The DCMU can test the lines of an individual DLC remote terminal, or a group of terminals that are located together. The

capacity of terminals that the DCMU can test is determined by analysis of test traffic and economic factors as well. Both the CRT at the SAC and the VRS are compatible with the DCMU. These units are self calibrating, unlike the PMU's of an LMOS supported Loop Testing System. The 4TEL CCU is linked to the DCMU via either a 1200 baud dialup or a dedicated link, depending upon the size of the exchange.

Some of the tests that 4TEL performs are loop and ground resistance (which detects resistance faults and sheath ground problems), dial tone test (in which the number of times dial tone can be drawn during a certain period is recorded), busy line monitoring

tests (totalizer, coin relay, etc.), as well as all the standard tests which were covered above. A pair identification can also be done, in which a tone is placed on the pair to help those at terminal cabinets locate that specific one, similar to the LMOS/MLT tone applique function.

**Miscellaneous Notes**  
If a user enters the number of the 4TEL system they have dialed in upon, the system will announce an intercept. A user cannot monitor/trace Directory Assistance through 4TEL lines that are out of the system's NPA can be tested also, but a 1 has to be dialed before the number just like an ordinary toll call. The 4TEL VRS will give the user a "beep" tone after a few seconds of waiting for input. If the user doesn't enter anything, the VRS will disconnect. A version of the 4TEL system is also used by Rochester Tel in New York, and there may be other independent companies that use the system.

Try to find out what system you're served by. If you're in a Bell area, it will most likely not be 4TEL, but LMOS. I hope that this article has helped readers to better understand the way the 4TEL system operates. Again, there may be some differences depending upon the area and the company.

Thanks to the small group of people who contributed additional information to the contents of this article.

## Words from our readers

### Mobile Telephone Info

Dear 2600:

The article "Scanning for Calls" appearing in the Summer 1989 issue mistakenly identifies the phone service using 451-459 mhz as cellular phone service. IMTS/MTS, old style mobile telephone service, service is found between 454-455 mhz, 152-153 mhz, and 35.25-35.66 mhz. This service can be provided by either the phone company or an RCC (Radio Common Carrier).

RCC's can also provide paging services. While these frequencies are not locked out of most scanners, they are illegal to intercept due to the passage of the FCCA, just like cellular.

Since the IMTS/MTS service providers were not the major force behind the passage of the FCCA, unlike the cellular industry, and scanners capable of intercepting their frequencies have been on the market since the epoch the services on these frequencies have been left unprotected by scanner manufacturers. The media's focus on cellular service may also have been a factor.

For informational purposes here are the Mobile Telephone Channel Assignments for the above ranges:

201: 35.25	202: 35.30	203: 35.34	204: 35.38	205: 35.42	206: 35.46	207: 35.50	208: 35.54	209: 35.58	210: 35.62	211: 35.66	212: 35.70	213: 35.74	214: 35.78	215: 35.82	216: 35.86	217: 35.90	218: 35.94	219: 35.98	220: 36.02	221: 36.06	222: 36.10	223: 36.14	224: 36.18	225: 36.22	226: 36.26	227: 36.30	228: 36.34	229: 36.38	230: 36.42	231: 36.46	232: 36.50	233: 36.54	234: 36.58	235: 36.62	236: 36.66	237: 36.70	238: 36.74	239: 36.78	240: 36.82	241: 36.86	242: 36.90	243: 36.94	244: 36.98	245: 37.02	246: 37.06	247: 37.10	248: 37.14	249: 37.18	250: 37.22	251: 37.26	252: 37.30	253: 37.34	254: 37.38	255: 37.42	256: 37.46	257: 37.50	258: 37.54	259: 37.58	260: 37.62	261: 37.66	262: 37.70	263: 37.74	264: 37.78	265: 37.82	266: 37.86	267: 37.90	268: 37.94	269: 37.98	270: 38.02	271: 38.06	272: 38.10	273: 38.14	274: 38.18	275: 38.22	276: 38.26	277: 38.30	278: 38.34	279: 38.38	280: 38.42	281: 38.46	282: 38.50	283: 38.54	284: 38.58	285: 38.62	286: 38.66	287: 38.70	288: 38.74	289: 38.78	290: 38.82	291: 38.86	292: 38.90	293: 38.94	294: 38.98	295: 39.02	296: 39.06	297: 39.10	298: 39.14	299: 39.18	300: 39.22	301: 39.26	302: 39.30	303: 39.34	304: 39.38	305: 39.42	306: 39.46	307: 39.50	308: 39.54	309: 39.58	310: 39.62	311: 39.66	312: 39.70	313: 39.74	314: 39.78	315: 39.82	316: 39.86	317: 39.90	318: 39.94	319: 39.98	320: 40.02	321: 40.06	322: 40.10	323: 40.14	324: 40.18	325: 40.22	326: 40.26	327: 40.30	328: 40.34	329: 40.38	330: 40.42	331: 40.46	332: 40.50	333: 40.54	334: 40.58	335: 40.62	336: 40.66	337: 40.70	338: 40.74	339: 40.78	340: 40.82	341: 40.86	342: 40.90	343: 40.94	344: 40.98	345: 41.02	346: 41.06	347: 41.10	348: 41.14	349: 41.18	350: 41.22	351: 41.26	352: 41.30	353: 41.34	354: 41.38	355: 41.42	356: 41.46	357: 41.50	358: 41.54	359: 41.58	360: 41.62	361: 41.66	362: 41.70	363: 41.74	364: 41.78	365: 41.82	366: 41.86	367: 41.90	368: 41.94	369: 41.98	370: 42.02	371: 42.06	372: 42.10	373: 42.14	374: 42.18	375: 42.22	376: 42.26	377: 42.30	378: 42.34	379: 42.38	380: 42.42	381: 42.46	382: 42.50	383: 42.54	384: 42.58	385: 42.62	386: 42.66	387: 42.70	388: 42.74	389: 42.78	390: 42.82	391: 42.86	392: 42.90	393: 42.94	394: 42.98	395: 43.02	396: 43.06	397: 43.10	398: 43.14	399: 43.18	400: 43.22	401: 43.26	402: 43.30	403: 43.34	404: 43.38	405: 43.42	406: 43.46	407: 43.50	408: 43.54	409: 43.58	410: 43.62	411: 43.66	412: 43.70	413: 43.74	414: 43.78	415: 43.82	416: 43.86	417: 43.90	418: 43.94	419: 43.98	420: 44.02	421: 44.06	422: 44.10	423: 44.14	424: 44.18	425: 44.22	426: 44.26	427: 44.30	428: 44.34	429: 44.38	430: 44.42	431: 44.46	432: 44.50	433: 44.54	434: 44.58	435: 44.62	436: 44.66	437: 44.70	438: 44.74	439: 44.78	440: 44.82	441: 44.86	442: 44.90	443: 44.94	444: 44.98	445: 45.02	446: 45.06	447: 45.10	448: 45.14	449: 45.18	450: 45.22	451: 45.26	452: 45.30	453: 45.34	454: 45.38	455: 45.42	456: 45.46	457: 45.50	458: 45.54	459: 45.58	460: 45.62	461: 45.66	462: 45.70	463: 45.74	464: 45.78	465: 45.82	466: 45.86	467: 45.90	468: 45.94	469: 45.98	470: 46.02	471: 46.06	472: 46.10	473: 46.14	474: 46.18	475: 46.22	476: 46.26	477: 46.30	478: 46.34	479: 46.38	480: 46.42	481: 46.46	482: 46.50	483: 46.54	484: 46.58	485: 46.62	486: 46.66	487: 46.70	488: 46.74	489: 46.78	490: 46.82	491: 46.86	492: 46.90	493: 46.94	494: 46.98	495: 47.02	496: 47.06	497: 47.10	498: 47.14	499: 47.18	500: 47.22	501: 47.26	502: 47.30	503: 47.34	504: 47.38	505: 47.42	506: 47.46	507: 47.50	508: 47.54	509: 47.58	510: 47.62	511: 47.66	512: 47.70	513: 47.74	514: 47.78	515: 47.82	516: 47.86	517: 47.90	518: 47.94	519: 47.98	520: 48.02	521: 48.06	522: 48.10	523: 48.14	524: 48.18	525: 48.22	526: 48.26	527: 48.30	528: 48.34	529: 48.38	530: 48.42	531: 48.46	532: 48.50	533: 48.54	534: 48.58	535: 48.62	536: 48.66	537: 48.70	538: 48.74	539: 48.78	540: 48.82	541: 48.86	542: 48.90	543: 48.94	544: 48.98	545: 49.02	546: 49.06	547: 49.10	548: 49.14	549: 49.18	550: 49.22	551: 49.26	552: 49.30	553: 49.34	554: 49.38	555: 49.42	556: 49.46	557: 49.50	558: 49.54	559: 49.58	560: 49.62	561: 49.66	562: 49.70	563: 49.74	564: 49.78	565: 49.82	566: 49.86	567: 49.90	568: 49.94	569: 49.98	570: 50.02	571: 50.06	572: 50.10	573: 50.14	574: 50.18	575: 50.22	576: 50.26	577: 50.30	578: 50.34	579: 50.38	580: 50.42	581: 50.46	582: 50.50	583: 50.54	584: 50.58	585: 50.62	586: 50.66	587: 50.70	588: 50.74	589: 50.78	590: 50.82	591: 50.86	592: 50.90	593: 50.94	594: 50.98	595: 51.02	596: 51.06	597: 51.10	598: 51.14	599: 51.18	600: 51.22	601: 51.26	602: 51.30	603: 51.34	604: 51.38	605: 51.42	606: 51.46	607: 51.50	608: 51.54	609: 51.58	610: 51.62	611: 51.66	612: 51.70	613: 51.74	614: 51.78	615: 51.82	616: 51.86	617: 51.90	618: 51.94	619: 51.98	620: 52.02	621: 52.06	622: 52.10	623: 52.14	624: 52.18	625: 52.22	626: 52.26	627: 52.30	628: 52.34	629: 52.38	630: 52.42	631: 52.46	632: 52.50	633: 52.54	634: 52.58	635: 52.62	636: 52.66	637: 52.70	638: 52.74	639: 52.78	640: 52.82	641: 52.86	642: 52.90	643: 52.94	644: 52.98	645: 53.02	646: 53.06	647: 53.10	648: 53.14	649: 53.18	650: 53.22	651: 53.26	652: 53.30	653: 53.34	654: 53.38	655: 53.42	656: 53.46	657: 53.50	658: 53.54	659: 53.58	660: 53.62	661: 53.66	662: 53.70	663: 53.74	664: 53.78	665: 53.82	666: 53.86	667: 53.90	668: 53.94	669: 53.98	670: 54.02	671: 54.06	672: 54.10	673: 54.14	674: 54.18	675: 54.22	676: 54.26	677: 54.30	678: 54.34	679: 54.38	680: 54.42	681: 54.46	682: 54.50	683: 54.54	684: 54.58	685: 54.62	686: 54.66	687: 54.70	688: 54.74	689: 54.78	690: 54.82	691: 54.86	692: 54.90	693: 54.94	694: 54.98	695: 55.02	696: 55.06	697: 55.10	698: 55.14	699: 55.18	700: 55.22	701: 55.26	702: 55.30	703: 55.34	704: 55.38	705: 55.42	706: 55.46	707: 55.50	708: 55.54	709: 55.58	710: 55.62	711: 55.66	712: 55.70	713: 55.74	714: 55.78	715: 55.82	716: 55.86	717: 55.90	718: 55.94	719: 55.98	720: 56.02	721: 56.06	722: 56.10	723: 56.14	724: 56.18	725: 56.22	726: 56.26	727: 56.30	728: 56.34	729: 56.38	730: 56.42	731: 56.46	732: 56.50	733: 56.54	734: 56.58	735: 56.62	736: 56.66	737: 56.70	738: 56.74	739: 56.78	740: 56.82	741: 56.86	742: 56.90	743: 56.94	744: 56.98	745: 57.02	746: 57.06	747: 57.10	748: 57.14	749: 57.18	750: 57.22	751: 57.26	752: 57.30	753: 57.34	754: 57.38	755: 57.42	756: 57.46	757: 57.50	758: 57.54	759: 57.58	760: 57.62	761: 57.66	762: 57.70	763: 57.74	764: 57.78	765: 57.82	766: 57.86	767: 57.90	768: 57.94	769: 57.98	770: 58.02	771: 58.06	772: 58.10	773: 58.14	774: 58.18	775: 58.22	776: 58.26	777: 58.30	778: 58.34	779: 58.38	780: 58.42	781: 58.46	782: 58.50	783: 58.54	784: 58.58	785: 58.62	786: 58.66	787: 58.70	788: 58.74	789: 58.78	790: 58.82	791: 58.86	792: 58.90	793: 58.94	794: 58.98	795: 59.02	796: 59.06	797: 59.10	798: 59.14	799: 59.18	800: 59.22	801: 59.26	802: 59.30	803: 59.34	804: 59.38	805: 59.42	806: 59.46	807: 59.50	808: 59.54	809: 59.58	810: 59.62	811: 59.66	812: 59.70	813: 59.74	814: 59.78	815: 59.82	816: 59.86	817: 59.90	818: 59.94	819: 59.98	820: 60.02	821: 60.06	822: 60.10	823: 60.14	824: 60.18	825: 60.22	826: 60.26	827: 60.30	828: 60.34	829: 60.38	830: 60.42	831: 60.46	832: 60.50	833: 60.54	834: 60.58	835: 60.62	836: 60.66	837: 60.70	838: 60.74	839: 60.78	840: 60.82	841: 60.86	842: 60.90	843: 60.94	844: 60.98	845: 61.02	846: 61.06	847: 61.10	848: 61.14	849: 61.18	850: 61.22	851: 61.26	852: 61.30	853: 61.34	854: 61.38	855: 61.42	856: 61.46	857: 61.50	858: 61.54	859: 61.58	860: 61.62	861: 61.66	862: 61.70	863: 61.74	864: 61.78	865: 61.82	866: 61.86	867: 61.90	868: 61.94	869: 61.98	870: 62.02	871: 62.06	872: 62.10	873: 62.14	874: 62.18	875: 62.22	876: 62.26	877: 62.30	878: 62.34	879: 62.38	880: 62.42	881: 62.46	882: 62.50	883: 62.54	884: 62.58	885: 62.62	886: 62.66	887: 62.70	888: 62.74	889: 62.78	890: 62.82	891: 62.86	892: 62.90	893: 62.94	894: 62.98	895: 63.02	896: 63.06	897: 63.10	898: 63.14	899: 63.18	900: 63.22	901: 63.26	902: 63.30	903: 63.34	904: 63.38	905: 63.42	906: 63.46	907: 63.50	908: 63.54	909: 63.58	910: 63.62	911: 63.66	912: 6
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# Letters from people

## Another Request

Dear 2600:

you're blue in the face and to let those responsible know what's being said about them.

Good luck.

## A Nagging Question

Dear 2600:

How many subscribers do you have anyway?

The Apple Worm

Next to "Whatever happened?" we get asked to TRULY that's the question we get asked the most. It's harder to answer than it might seem because 2600 isn't like most other magazines. We have around 1,000 people who get the magazine sent directly to them. But don't be deceived by that rather small number. Many others frequent pools of readers at least four times that number get what is known as a "secondary" copy, that is, one that has been copied by a friend or even electronically transcribed. Naturally, we prefer it when people subscribe directly because it helps keep us going. The most important thing, though, is to get the information out. Close to 1,000 more copies go to various newstands and bookstores around the world. And whatever else is left goes to all of the people that order back issues in the future. So, to answer your question, we don't really know. The numbers just don't tell the whole story in our case.

## A Request

Dear 2600:

Thank you for publishing such an informative well-written magazine.

I only have one complaint. Please try to deal more with phone phreaking than hacking. Anyone can get access to a phone, but not all of us have computers and modems to participate in computer hacking.

Thank you.

Grand Rapids, MI

# just like you

First off, in a country where a computer hacker is locked up in solitary confinement while sadistic murderers aren't, he just a plain back-stabber? Whatever the case, if you have two phone lines and the call-waiting feature on one of the lines, you can tap his phone line and listen to his conversations if he has call-waiting dialed! 1) Call up your friend with the phone you wish to listen to his call-waiting (he's already on the phone and you are the second caller), then you either just sit there quietly or say, "I'm sorry, I have the wrong number." 2) Next, you wait until he returns to his original call (the one you interrupted) and he puts you on hold. 3) Now, pick up your other phone line and call your call-waiting. 4) Answer your call-waiting. 5) Now go back to him. (However, then click back. Click two times, answer, and go back.) 6) Hang up your second line. 7) You are now on the line where, once you understand what these restrictions are, you can attempt to find a way around them, like calling through a remote part of Canada, perhaps through an 800 number that terminates there. It all depends on what has changed. It sounds as if you were able to box off your outgoing trunks in the past which is why it didn't matter what number you dialed if these have changed, it will now only work if the remote trunk is still boxable. Keep in mind that blue-boxing is dangerous, particularly in an ESS where.

The only complaint we've had about the red box circuit in the Summer '88 issue is that the scheme is too small. For a bigger copy, send us a stamp or an SASE.

## The Call-Waiting Phone Tap

Dear 2600:

Can you please tell me if this really works?

From Alternative Information, Inc.

Box 4, Castillage, TX 75633: "So, you think your best friend may be running around with your girlfriend, right? Or is he just a plain back-stabber? Whatever the case, if you have two phone lines and the call-waiting feature on one of the lines, you can tap his phone line and listen to his conversations if he has call-waiting dialed! 1) Call up your friend with the phone you wish to listen to his call-waiting (he's already on the phone and you are the second caller), then you either just sit there quietly or say, "I'm sorry, I have the wrong number." 2) Next, you wait until he returns to his original call (the one you interrupted) and he puts you on hold. 3) Now, pick up your other phone line and call your call-waiting. 4) Answer your call-waiting. 5) Now go back to him. (However, then click back. Click two times, answer, and go back.) 6) Hang up your second line. 7) You are now on the line where, once you understand what these restrictions are, you can attempt to find a way around them, like calling through a remote part of Canada, perhaps through an 800 number that terminates there. It all depends on what has changed. It sounds as if you were able to box off your outgoing trunks in the past which is why it didn't matter what number you dialed if these have changed, it will now only work if the remote trunk is still boxable. Keep in mind that blue-boxing is dangerous, particularly in an ESS where.

We'll be honest. We asked quite a few people to test it out and nobody was able to make it work. But nobody said such a thing was impossible. If it does work, it probably only works with in the same central office, maybe even the same exchange. If you can get two lines in the same central office that each have call waiting, try all means try it out. If it works, let us know what your exchange is. If this capability does exist, it's probably a flaw in a particular type of switch. We'll let you know what we find out.

## Interesting Numbers

Dear 2600:

You may have seen the bumper stickers about that say:

DON'T LIKE MY DRAFFNESS?

One day I got inspired and dialed it. Amazingly enough, there was a record-

## letters, letters and more letters

had there promising to explain the bumper sticker if I only dialed a 800 number somewhere. How much money he would extract from my wallet in the process was unclear. But the idea of advertising a 800 number via an 800 number is certainly a new one, at least to me.

You think that's sleazy? Maybe, but we seem to. A baseball player in California offered to sell the real story before his drug arrest, but only if you call a special 800 number. Still another has you call a 900 number which tells you to call another 900 number.

Dear 2600:

Could you say something about the number 900-555-0000? By changing the prefix and adding the 0000 to the

LR

end you get a recording that identifies the 800 exchange provider. Maybe someone can give some insight to this. It's almost like the 700-555-4141 long distance service.

There's not much we can add to what you said, except to be careful when dialing a 900 number as it may turn around and bill you for a special toll. If you look in our Spring '89 issue, you'll see a complete list of prefixes and their corresponding companies for both 800 and 900 exchanges. By the way, 800-555-0000 gives you that information as well. Also, if you want to hear what other companies' messages sound like, simply prefix the 700-555-4141 verification number with the carrier access prefix. For example, 10220-700-555-4141 will get you MCIS's verification message. 10268-700-555-4141 will get you AT&T, etc. Look in this issue somewhere for a complete list of carrier access prefixes.

### UNIX Hacking

Dear 2600:

As a long-time UNIX systems program and security officer, I found the

two-part series (*A Hacker's Guide to UNIX*) quite interesting. I contacted Rad Knight on his or her following the trace number somewhere. How much money he would extract from my wallet in the process was unclear. But the idea of advertising a 800 number via an 800 number is certainly a new one, at least to me.

First, there are two major versions of UNIX: AT&T and Berkeley. Minor variations on these major versions abound. The AT&T version is used mainly in the "commercial" world and for all practical purposes, it doesn't support computer networking. The Berkeley version differs in many subtle ways (most of which make it friendlier to programmers and users), but a primary difference is the thorough support of TCP/IP networking. (Networking computer networks is a topic worthy of a separate article!) The Berkeley version is used by many universities, and it also forms the basis for the version of UNIX supported by Sun Microsystems.

Second, login names may include any characters and may be any length up to and including 8 characters. Administrators discourage upper case login names, due to UNIX's attempt to determine whether you are logging in from an upper-case only terminal (a now obsolete feature).

Third, different UNIX versions differ in the password requirements,

although all have a maximum of 8 characters. The standard way for UNIX to handle passwords is to use the DES word as the key to a modified DES encryption routine, and encrypt the password with the carrier access prefix. For example, 10220-700-555-4141 will get you MCIS's verification message. 10268-700-555-4141 will get you AT&T, etc. Look in this issue somewhere for a complete list of carrier access prefixes.

### Intelligent Payphones

Dear 2600:

July person having the phone number and password of a specific intelligent payphone can do such things as program the calling rates, check the amount of coin in the box or even check to see if the phone has been vandalized.

An FCC approved data access strength must be used to connect the system to telephone lines with an automatic ring detect circuit answering incoming calls. Upon receiving an incoming call, the software could be set up such that the software issues a false ringback tone or busy tone to discourage unauthorized users. Programmed with the password, however, could simply enter DTMF codes over the false call progress tones to gain access. Once the password has been correctly entered (from any DTMF

shells available:

Bourne shell: /bin/sh - all systems

C shell: /bin/csh - Berkeley systems

From shell: /bin/ksh - recent AT&T systems

spirit of hacking, learning about something through experimentation. I would like to make a few remarks which may prove useful to people who will follow in Rad's footsteps.

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phone) commands can then be entered.

Upon reading this information (from the California Micro Devices Data Applications for the GS880 DTMF Transceiver), I promptly went down to the local mall where I knew there would

be some "intelligent payphones". For some reason, the numbers of the two payphones I found were printed on the outside of the phone. Armed with this information, I went home and proceeded to dial up the payphones. During the ringback, I tried beeping in a few DTMF tones, but to no avail. But after a few rings, a computerized voice came on which advised the operator that this was a public phone (and therefore collect calls should not be directed to it). When the voice stopped, I tried some DTMF tones once again. The phone beeped some tones back and then eventually hung up. After calling back a few times, I stumbled into something remarkable. I began to hear the sounds of cars starting and people talking. I had somehow caused the payphone to monitor the area near the payphone and transmit these sounds back to me at the other end of the line. Needless to say, I was quite surprised. I began to ponder several questions: is this legal? What legitimate purpose is there for a function like this on a payphone? Should the general public know? It occurs to me that we should experiment more with these private payphones and see what other hidden features they may have.

Mr. Upsetter

By all means, experiment. We'd like to know what formats exist for the security phones, i.e., how many digits, when are they entered, etc. In answer to your other question, it's probably legal, although for what purpose it's intended we're hard pressed to say.

### Related Payphones

Dear 2600:

In the Spring '89 edition, I read your article on How Payphones Really Work and enjoyed it immensely; I thought that

## post-script

It was a very accurate and informative place. Continue the excellent work.

Now that I have given your ego a boost, I will ask for a favor. Could you please include in one of the next articles a piece on 'collected only phones' as I am incarcerated at the present time and all that is available to use from this crowbar hotel are those deviousable gadgets. They are the most exasperating items ever invented, as you are unable to call 800 numbers or to bill to a third party or even be able to use a telephone credit card with them. The party you are calling must pay the exorbitant prices which they charge for collect calls, and who the hell wants to try to convince individuals to accept collect calls? There has to be a way around these much-needed monsters, and any info which you could possibly print about them would be greatly appreciated.

Incarcerated

It's hard to experiment with some-  
thing without having access to it. That's  
why people who had themselves locked  
up with these hell-phones have to try  
everything possible. It is entirely possi-  
ble there are far holes, considering what  
the purpose of these phones is. In that  
case, there are still options. For  
instance, just suppose you called a  
voicemail system or an answering  
machine that answers the phone with  
the message: 'Hello? (pause) Why of  
course I'll accept charges.' If you're  
lucky enough to gain access to a voice  
mail system that allows you to dial out,  
you'll be able to make phone calls and  
rack up two bills at the same time.  
Unless your DMP load gets cut off after  
a connection is made, in which case  
you'll need a voice box (portable DMP  
generator) to hold up to the mouthpiece.  
And that's probably illegal to possess in  
prison. Readers, any thoughts?

## British Telecom: Guilty

(continued from page 12)

easier.

Some people may not want the complete range of features offered by a fully digital system, but most will approve the changes which give them fast, clear communication, with fewer breakdowns and less maintenance needed. That is where British Telecom is heading.

As the old saying goes - a chain is only as strong as its weakest link. Hence, until every connection end to end of a telephone call is fully digital, you may not notice any difference in the clarity of the line.

Once it is all digital, calls will be connected in split seconds, and the line will be sharp and clear.

In the meantime, if you see a British Telecom engineer up a telephone pole or down a manhole - please remember he is trying to bring you the best possible service, wherever you may live.

Did you get the feeling that perhaps the public isn't too happy with old BT? Or all the phone companies we've ever come across, these folks seem to have the guiltiest consciences.

# I ♥ your computer

THIS IS THE BEST FAX WE'VE GOTTEN SO FAR,  
NOT COUNTING ARTICLES. YOURS COULD MAKE IT  
TO THE WINTER ISSUE. KEEP THEM COMING IN.  
(516) 751-2608!!!

HOME OF THE COMPUTER

# REMOBS

by The Infidel

Technically REMOBS stands for REMote Serviced Observation System. But in plain, everyday English, it's the Bell's way of watching what you do on the phone.

This is far more dangerous to foophreaks, which begins recording as soon as you pick up the phone in order to catch the numbers you dial.

The REMOBS allows anyone to tap into your line, without clicks, boops, noises, volume or voltage drop (sorry guys, but those voltage meters on the line won't cut it here), and most importantly of all, it can be done without the need of a hardware tap. That's what makes the REMOBS so dangerous. It's done from remote. In other words, from any touch tone phone.

The REMOBS was meant for observational purposes. When designed, it was devised so managers and fellow telco employees couldn't indiscriminately access anyone's line and make calls off of it, while providing the person monitoring the line safety from detection. The signal coming out of the mouthpiece and keypad of the observer's phone will not make it to the target number's end. So, your victim cannot hear you when you look onto his line, nor can he hear when you drop off. This isn't a gizmo like the covert or the gold box, it's totally different.

When you call up the REMOBS unit, you will hear a tone which lasts for about 2 seconds. You then have about 5 seconds to key in the access code or the REMOBS will hang up. The access code is different, depending on the unit, ranging from two digits up to five, but most commonly being four. When entering the code from the touch tone keypad, each digit must be held down for about a second for the unit to receive it. When you key in the correct code, you'll hear another tone and the unit will wait for the 7-digit target telephone number.

But here's the catch: due to the volume of exchanges present within an NPA, the unit itself is limited to covering only a small region, usually within the confines of a con-

tinental office. In large cities, many units may be needed to cover an entire NPA, and so, your REMOBS may not be able to reach every number you try. That means that you'll most likely need more than one REMOBS to cover one area or city. This also means that it will not be able to access off-of-LATA numbers.

After dialing the target number, if that line is being used, you'll instantly be connected with the conversation, and they, as I've said before, will never know you're there. If you should look into the target number when it's not in use, you won't hear anything - just line noise and maybe some cross talk, rather than hearing the actual dial tone, as you would if you had made a direct line tap. With the REMOBS, you don't actually "connect" with the customer's line; you simply monitor it.

When the customer picks up the phone, you'll hear their dial tone, the person asking the number and the conversation, and then the person hanging up again. You could stay there all day, but that's not too smart. Through your keypad may not be heard by the line you're monitoring, the REMOBS itself does recognize the tones. To disconnect the unit from the current tap, enter a digit, most often the last digit of the access code. After you disconnect, you'll get the second tone again, prompting you for another seven digit number, you don't have to remember the access code. When you're done with the REMOBS altogether, instead of hitting the last digit of your access code to reset the unit for another number, you must enter another digit, which varies from unit to unit, to disconnect totally so the unit can be used again.

It's important not to just hang up from the REMOBS, or it will stay connected to the line #2 in the mid seventies. You could distinguish this switch by the loud 1100 cycle tone between rings that indicated a number wasn't in service. Also, GTE's busy signals would time out after about 18 cycles. Another characteristic: if you came in on someone else's call waiting, you could hear a short bit of the conversation you were interrupting right before the ring, which was about 50 percent longer than a normal ring.

The FAX #5 was introduced around 1980. It was soon renamed the GID #5 (General Telephone Digital #5). It was more sophisticated, with no clicks at any point in the connection.

In this issue we printed an article about AT&T's testing system used by GTE. What quite a few people don't realize is that GTE hasn't been involved only with Sprint, a long distance company. For many years, GTE has been operating local phone companies in areas known as non-Bell regions.

Their equipment is made by a company called Automatic Electric, located in Illinois. (We've heard reports that AT&T has bought them, to make things even more confusing.) This company only made step, electronic, and digital switches, completely skipping over crossbar. One of their early electronic switches was known as the EAX #1 and was introduced in the early seventies. It had very few

beeps if a call comes in while the call is on hold and they're taking the second call. Whether this is a design flaw or a feature is unclear. custom calling features can be accessed on the second line, unlike most local calling companies, who only offer local calling on the second line.

Many of those who live in GLE land do not sing a happy tune, particularly those who don't have digital switches. Here are some observations:

"The telephone 'service', if I may use the term lightly, was abominable. I personally experienced all of the horrors (lousy call completion rates, wacky wrong numbers, noisy-and-not-just-white-noise lines), and then some."

"I know a fair number of people for whom Pacific Telephone vs. GTE was a factor in choosing a place to live — and not the least important factor by far."

"For year after year here I Durban, North Carolina I put up with wild buzzes on the line; picking up the phone to dial, only to find other people on the line in the middle of conversation; not getting important

calls because my phone wouldn't ring properly; touch tones that weren't buffered well enough and were converted to noise anyway (if you dialed too fast, you had to start all over); dropped connections in the middle of a conversation; frequent wrong numbers.

bers not even remotely similar to mine number. These were not isolate things every couple of months — was off the fence."

GTE payphones don't get very good reviews either. I once spent a miserable time

days looking for an apartment in Braehead.

(almost all covered by GTE), driving around with a car full of newspapers and a pocketful of dimes. I got so I wouldn't even bother stopping at a GTE payphone unless there were at least two of them together, as only then was it likely that I'd find a single working phone. The defective phones were in nice areas and had no signs of exterior damage — they just didn't work. Often they'd be sitting there emitting strange clicking and thunking noises, as if they couldn't quite digest that last coin. Others would appear to be fine until you put a dime in.

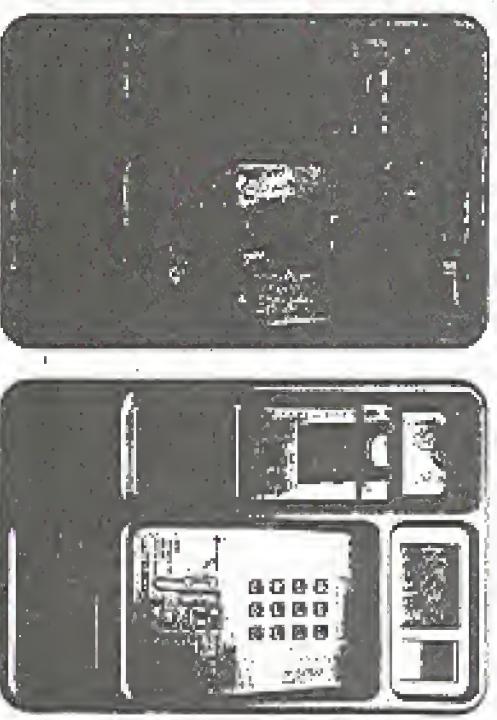
Then there was this observation: "One of the interesting experiences that GTE participates in when you have not paid your phone bill is that they will not disconnect your line, but rather they will block outgoing calls... except 800's. When they did this to me, I didn't care because I almost never made any local calls. One call to the Sprint 800 number and I could make all the long distance calls I wanted."

This article was written with the help of Silent Switcher and Mr. Ed. Angry comments were graciously from *The Telecom Digest*, a newsletter distributed on the computer networks.

1

AN INTERNAL BRITISH TELECOM ADVERTISEMENT.  
YOU WON'T GET A BETTER PICTURE OF A BT PAYPHONE.  
AT LEAST, NOT FROM US.

Nowadays, we fix a problem before there is a problem.



Page 34 2600 Magazine Autumn 1989

# Voice Mail Hacking

by Arlstele

There are four models of the Genesis Voice Mailbox Systems (VMS). They all have the good VMS features, like voice data compression, ability to send messages to other users, user definable passwords (I believe up to 10 digits), user definable opening message, ability to review message when recording, and a separate phone number for each box.

## How To Hack The VMS

The first step is to find the voice mail system. The easiest way to find a system is to look in the yellow pages under telephone answering services and/or equipment companies. I found a system in Louisville, Kentucky that was listed with the name VoiceLink. Its number is 502-429-9200.

After finding the VMS, you must find out what type of system it is. There are many different types, each with their own unique characteristics. If you find that the system is

a Genesis system, look into it. Chances are you will be able to get in easily.

A Genesis system has the following distinguishable characteristics: 1) If you hit "0" during the announcement, it will prompt you for the password. 2) If you hit "P", it will go to a phonebook system. The phonebook is used to look up users' boxes by spelling out their names.

When the target Genesis system is found, do the following: 1) Find a mailbox with an announcement that says, "I am taking a message for mailbox number XXX." 2) During this announcement, press the "0" key and wait for the password prompt. 3) At this prompt, press "0" again. This is almost always the password for the unused box. If it is not "0", then go to the next open box. 4) Now that you have control, change your password and follow the friendly directions. It is extremely user-friendly so you should have fun.

## NYNEX Style

In mid-August the NYNEX Business Centers' nationwide voice mail information system was penetrated by unauthorized individuals. According to Randy Harrelson, voice mail administrator at NYNEX, numerous "kids, maybe twelve or thirteen years old", who "didn't know what they were doing" took over 38 of approximately 1900 voice mailboxes on the system.

Display modem numbers used to manage the system were posted on at least two bulletin boards and sent to other interceptors via the voice mail system, but most of the "easy passwords" chosen by legitimate users. The callers identified themselves with aliases such as Flight Commander, Knight Caller, Blackbeard, Chris Columbus, Photo Bug, Easy E, Ray Gun, Mr. Upright, Teenage Warior, and Mr. Six.

According to Harrelson, at least one message passed between purloined mailboxes contained information detailing stolen credit

card numbers and expiration dates. The FBI was reportedly notified, but was only interested in the credit fraud issue, not in security problems with the system. Interestingly, NYNEX has always maintained that messages on the system were not retrievable by anyone other than the recipient.

The security breach allegedly brought the system down one evening and later resulted in a system broadcast to all users warning them not to convey sensitive information on the system. Instead suggesting "more secure" methods such as the U.S. Mail, IBM PC/ES, and the direct-dial telephone network. While most of the abused mailbox passwords were deleted and re-assigned after two weeks, the system administrator received one message offering information about other compromised mailboxes and the security loopholes used in exchange for legitimate voice mail privileges. The offer was neither accepted nor replied to.

# PUNCHING PAY PHONES

By Micro Surgeon/West Coast Phreaks

Remember in the movie *WarGames* when David needed to make a call, and had no money. He did so by opening the mouthpiece and touching a piece of metal from the inside of mouthpiece to the plate of the pay phone. Believe it or not this ar-

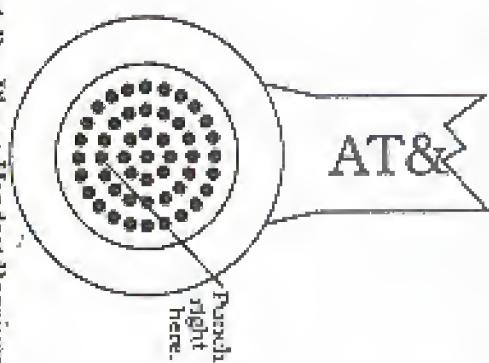
chaic technique still works in the most sophisticated areas, including all BOCs (Bell Operating Companies) DTF (dial tone first) pay phones. This technique does not, however, work on private pay phones.

To make a local call, without using coins (or slugs), first punch a small hole (see diagram) with something sharp (i.e. a nail) through the existing outer plastic holes into the inner (metal) mouthpiece. This gives access to the inner magnetic coil. Next dial the first six digits of the local number and before dialing the last digit, touch the nail to the face plate, holding it there as you press the last digit. This whole process of touching the nail to the face plate, pressing the seventh digit, and simultaneously releasing it from face plate as the button is let go, should all be done within one second. Timing can be critical. Essentially the phone is being grounded, and as a result BOCs are fooled into thinking that sufficient funds have been deposited for local calls.

As with any ploy there are limitations and problems. Long distance calls cannot be made, because a different method is used to verify the deposited coins. One of the main problems is that a mild shock (not to death of course) may be experienced. A less serious problem can be that the mouthpiece may be damaged, by punching to hard or in the wrong place, rendering the phone useless.

Punching pay phones is nothing new, and I certainly didn't

discover this art. Of course a Red Box will work much better, but it could have inadvertently been left at home. What one should understand is that this technique will work and that it's not just a bit of telephone history.



A Pay Phone Handset Receiver

continued from page 18

It's only 7:30 pm. Lynn reaches for the

Technology Marches Back

Phone call to call him in New York. Introducing the new MCI Prime-Time Plan...." Or how about this from Sprint's FON Line Newsletter: "On average, most Americans will move 11 times during their lives, coping with a process that can be exhilarating, exhausting, and expensive.

A French computer system locked up big time when it misread some data. 41,000 Parisians who were supposed to have been fined for fairly minor offenses found themselves receiving computerized letters accusing them of all sorts of horrendous crimes.

Although moving can often be stressful, planning ahead can ease the transition and save wear and tear on your nerves and your wallet...." Five more paragraphs elaborate before the first mention is made of the Sprint and AT&T. It wouldn't be a bad idea to have a Sprint calling card. We suspect that kind of carrier sales pitch won't exactly be over the top, at least it's giving those who geters from the slush pile a place to go.

Apparently the code used in the system got mixed up, meaning that people who were supposed to have been fined for speeding were instead fined for parking. "There were a lot of cases of living off mineral earnings, stockpiling, and murder," said a City Hall official. "The accused persons will be receiving letters of apology. Instead of receiving summons on criminal charges, they should have been sent reminders of unpaid mineral royalties." Motorists ticketed for failing to stop at a red light were fined for "importing unauthorized veterinary medications" while those whose only offense was crossing a solid white line on the road were charged with "night fishing in a place reserved for fish breeding."

This exciting process, MCI has a test drive number that takes you through the advantages of using an MCI card. They can be reached 1-800-950-TEST. In both cases, valid calling card numbers are not necessary.

**Another Telco Ripoff**  
C&P Telephone is said to be seauising the public in the Washington DC area. It says that local calls in Washington DC are 20 cents, while in neighboring Maryland and Virginia they're 25 cents. Washington DC, none of the phones are marked for price and many people are fooled into depositing 25 cents instead of 20. The phones don't even give any change to callers who pay too much.

these, you dive into another menu where the computer attempts to isolate the problem by asking more yes/no questions. The whole process takes about three times longer than talking to a human being, but it saves New York Telephone the expense of human employees. And as for the wild-goose chase, it is possible to completely foul up the system by making lots and lots of calls, each time entering a different number. A repairman will be dispatched for each and every call. Hackers will have fun because they don't have to use their voices and the system is accessible from payphones. It's also

And Finally

possible to dispatch a repairman by accident since there's no way to abort. The system confirms the date the repairman will be over but never asks the customer to verify in case they've changed their mind. People who want to bypass all of this garbage can call 800-5511 toll-free and reach a human being.

Some words from the Beijing youth daily: "In recent days, people in Beijing who normally love to make phone calls have suddenly become cautious, and many of them say on the phone 'Let's write or chat face to face instead, otherwise we ought easily trouble...'"

**Lair of the INTERNET Worm**  
by Dark Overlord

These days worms & viruses seem like in thing to do. Most hackers (and crackers)

by DarkOverlord

These days worms & viruses seem the in thing to do. Most hackers (and crackers) have a friend who has a friend who is a "super genius" and wrote one that did amazing things, did wonders, scratchback, etc.... Any programmer worth half the rent in their system can write a worm and/or virus without much difficulty. The information provided in most magazines and newspapers on the subject is utter crap.

The decompiled source code to the "Internet Worm" is now available from 2600 magazine. The code is based on an effort of reverse engineering. Thus source, when compiled, will generate the same executable that the "Great" Internet Worm was made out of. I can't say where I got this code because she does not wish to have their name (handic) echoing around these circles.

The personal attack strategy of this worm was to reach as many hosts as possible rather than attempting to access higher privileges on an infected host. Please note that all of the attacks used by the Internet Worm have been fixed on

If you want a copy of the source code (with comments), send \$10 to 2600 Worn, PO Box 1153, Waukesha, WI 53187.

# Touch-Tone Frequencies

1209	1338	1477	1633
697	1	2	3 A
770	4	5	6 B
852	7	8	9 C
941	0	#	D

Each touch tone is a combination of two tones. For instance, 3 is 697 hertz and 1477 hertz. This diagram also contains the four extra tones that every touch tone phone is capable of producing. These tones are used in the U.S. military phone network (Autovon) for establishing the importance of the call. We'd like to hear specifics of any further uses for them.

## Special Information Tones (S.I.T.)

We've all heard these. They're the special tones you get right before you hear a recording telling you the number you've reached is out of service. They're also used for a multitude of other conditions. The purpose of these tones is to permit an automatic Call Disposition Analyzer (CDA) to differentiate between a human voice and a recorded announcement, and to categorize the type of recorded announcement.

**Special Information Tones** are a series of three tones at the beginning of an intercepted call.

## SIT Tone type and usages

Period	Frequency	Designation
SSI	IC - Intercept - Vacant # or AIS, etc.	
LLL	NC - No Circuit (Inter-LATA carrier)	
LLL	VC - Vacant Code	
LLL	HO - Recorder Announcement (Inter-LATA Carrier)	
LSS	#1 - Additional Reserved Code	
SLL	RO - Recorder Announcement	
SSL	#2 - Additional Reserved Code	
LLL	NC - No Circuit, Emergency, or Trunk Blockage	
	HO-High (985.2 hz 1428.5 hz)	

Period duration: S=Short (274 msec), L=Long (380 msec)

Frequency: L=Low (913.8 hz 1370.6 hz 1776.7 hz)

This information was taken from a central office recorder/announcer installation manual circa 1983.

# 2600 Marketplace

## HACKING AND PHREAKING SOFTWARE

WARE for the IBM and Hayes compatible modems. The best war dialers, extender scanners, and hacking programs. \$8.00, including shipping and handling. Make payable to Tim S., P.O. Box 2511, Belligham, WA 98227-2511.

FOR SALE: Manual for stopping snatches (1981). This is a true collector's item, with detailed explanations, diagrams, theory, and practical hints. \$15 or trade for Technical Tone Recognition program. FOR SALE: Genuine Bell phone handset. Charge waves, pulse, mute, transmit, status lights. Fully functional. Box included. \$90 OBO.

Please post to S. Fox, P.O. 31451, River Station, Rochester, NY 14627.

TAP BACK ISSUES, complete set Volumes 1-91 of QUALITY

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includes schematics and indexes.

Still posted. Via UPS or First Class Mail.

Copy of 1971 Esquire article "The Secrets of the Little Blue Box", \$5 & large SASE w/25 cents of stamps. Post G, P.O. Box 463, Mt. Laurel, NJ 08054. We are the

Original! WANTED: Information or documentation on Natural Microsystems' WILSON VLS Option. Will be used for upcoming 2600 voice mail board. Urgent. Need Contact the 2600 office (513) 751-8800.

2600 MEETINGS: First Friday of the month at the O'Connor Center, 6th & 6th pm in the Market, 153 E 53rd St., NY. Come by, drop off articles, ask questions. Call 516-751-2600 for still more info or to request a meeting in your city.

WANTED: Technical operators manual or any technical data on North-East Electronics Corp's T1S-2762H MF & Loop Signaling

## Display, Will you pay for copying and mailing costs, or reasonable price for genuine material. Does anyone know anything about this machine? Bernie S., 144 W. Eagle Rd.

Suite 102, Havertown, PA 19083.

FOR SALE: DEC VAX/VMS manuals for VMS 4.2. All manuals are in mm board.

FOR SALE: DEC VAX/VMS manuals for VMS 4.2. All manuals are in mm board. some still in the shrink-wrap. This is the best source for VMS knowledge anywhere. Contact me for more info. Kurt P.

P.O. 11222, Blacksburg, VA 24062-1282.

WANTED: Schematic and/or block diagram for G.E. TDM-1148-3 data set.

John B. Blatt, 914 N. Condova St., Burbank, CA 91505-2225.

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WILL TRADE: My knowledge of beating the game of Backgammon for information into hacking and phreaking. J. Kielich, 2558 Valley View #111, Las Vegas, NV 89102.

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Send for my 1st or 2nd 300 page and communications acronyms, only \$4. Jay H.

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Deadline for Winter Marketplace: 12/1/89.

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## CARRIER

ACCESSION CODES



# Timely TELEPHONE Tips

## WHEN YOU RECEIVE A TELEPHONE CALL

## WHEN YOU MAKE A TELEPHONE CALL

Always Remember to

### 1. ANSWER AS PROMPTLY AS POSSIBLE.

Try to answer before second ring.

### 2. IDENTIFY YOURSELF WHEN ANSWERED.

"Mr. Brown's office. Miss Johnson."

"Personal Macro."

### 3. SPEAK DISTINCTLY AND PLEASANTLY.

Hold microphone well to bottom of face.

### 4. AVOID TONE OR ABRUPT PERHAPS.

"Who's calling?" . . . "Just a moment."

"This is best." . . . "That's to continue."

"This did up." . . . "Be fast in."

### 5. VOLUNTEER THE "WHEREABOUTS AND WHENABOUTS" OF AN ABSENT PERSON.

"He can be reached in Ms. [last] office . . .

Brussels, 21st.

"He is out of the building until 3 o'clock."

"He can be reached in Ms. [last] office . . .

Brussels, 21st.

### 6. VOLUNTEER YOUR OWN ASSISTANCE.

"To there something I could do?"

"Could I help you?" . . . "Get anyone else?"

### 7. REQUEST IDENTITY OF CALLER DONT WHEN NECESSARY, AND IN A TACTFUL MANNER.

"May I have your name?"

"May I talk with Mr. [last]?"

### 8. EXPLAIN OFF-THE-LINE DELAYS.

"This is Mr. [last]—Can you wait a moment?"

### 9. TAKE MESSAGES, WRITINGLY.

With essential details on a suitable message form, deliver promptly.

### 10. TRANSFER ELSEWHERE ONLY WHEN YOU KNOW DESTINER THE CORRECT NO. GIVE OTHER THOSE INSTRUCTIONS.

10. KEEP YOUR CONVERSATION SHORT AND BRIEF.

FROM A DEFENSE DEPARTMENT PHONE BOOK

# THE GALACTIC HACKER PARTY

continued from page 11

While we're at it, we might as well pass along the toll-free numbers to get the equivalent services in other countries. Calling these will connect you to an operator in the following countries. They will expect you to provide a means of billing and to know who you're calling:

Australia: 800-682-2878; France: 800-537-2623; Hong Kong: 800-992-2323; Italy: 800-543-7662; Japan: 800-543-0051; The Netherlands: 800-432-0031; Panama: 800-872-6108; Singapore: 800-822-8588; South Korea: 800-822-8256; United Kingdom: 800-445-5687; West Germany: 800-282-0049.

### A Problem

Not all went smoothly as is the case sometimes. Apparently, some low-life memorized a 2600 AT&T Calling Card number, which, fortunately, was unused by us. It was very easy to isolate the \$3,000 worth of fraudulent calls billed to it.

We should emphasize that such an occurrence is very much the exception. In hacker circles, there's an unwritten rule: don't screw each other (we're speaking metaphorically for the moment). Whoever did this is not a hacker in the true sense, but a lowly, deceitful criminal. Unfortunately, many people judge hackers by the actions of such criminals. It's just not true; hackers have a very high code of ethics for the most part.

We think it's also important to throw some of the blame on AT&T, for continuing to be incredibly

stupid. Why is it necessary to print these credit cards with all 14 digits screaming for attention? They could be much more inconspicuous. Or better still, the phone number portion (which is usually what the first ten digits comprise) can be eliminated entirely, since most people are capable of remembering this. Right now, a simple glance at the numbers is all it takes.

Since this was, in fact, our phone bill, we thought we'd share some of it with you. Feel free to find out who these people are and who they know overseas; that may have placed the calls. AT&T may have already figured it out since they've had two months to do it.

415-422-3772 (Lawrence Livermore Labs), 301-345-5053, 617-938-5765, 718-768-7431 (Brooklyn, was called most frequently)

There are many more, but those appeared most frequently. We suspect the person who did this didn't realize that American phone bills come with complete itemization, that is, the day and time of the call, the number called, and the location the call came from. In a surprising amount of countries, this information still isn't provided. Based on the information given to us, it appears obvious that the person lives in England, made a visit to Amsterdam for the convention, and then went to West Germany for a week before returning home. It's also obvious that they kept the

# THE GALACTIC HACKER PARTY

## NOW HEAR THIS

code to themselves, as no two *edit* angles\*

We'd like to know what I have to say. I think the world of the world think we should do about this. Suppose we find out who it is? Do we tell AT&T? Do we tell the world? Do we forget it ever happened? What is the proper response in your eyes?

What's Next

We must emphasize that this was the only truly negative thing that happened as a result of the Galactic Hacker Party. We hope that what came out of this conference will strengthen the spirit of hackers everywhere. In America we need that strength desperately.

You may have noticed that our bulletin board network has pretty much collapsed, for varying reasons. Unfortunately, it seems to reflect a growing inertia, a lack of spirit. When we started operating BBS's, we expected them to grow and flourish. Why hasn't this happened?

calls, the hundreds of hacker bulletin boards, the clever pranks, the legendary phone phreaks? Are we afraid? Are we losing our spirit? Or are we just getting comfortably dumb?

A look through these pages will tell you that there are plenty of entities just aching to gain control of technology and in due time, the individual. This magazine is only one voice. We need more.

If you think you can do something, then you can. People all over the world know and understand the spirit of the hackers. It's up to all of us to keep it going.

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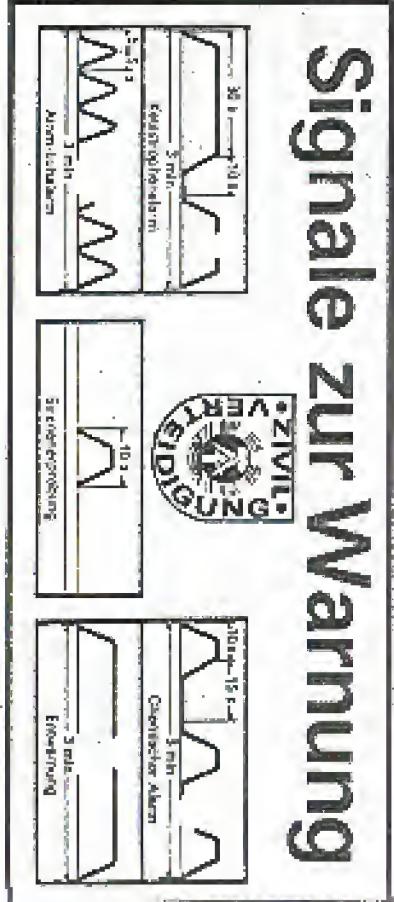
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At 2600, we don't exactly go out of our way to nag you about when your subscription is going to end, you won't find yourself getting those glossy reminders with free pens and digital quartz clocks and all that crap, we believe our subscribers are intelligent enough to look

al. mail address label and see if their subscription is about to expire. If it is or if you want to extend it, just fill out the form below (your label should be on the other side) and send it to our address (also on the other side), you don't get self addressed stamped envelopes from us. But the time and money we save will go towards making 2600 as good and informative as it can be.



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